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Please amend the claims as follows:

1. (Withdrawn – Currently amended) A microchip comprising

a first layer and a second layer, said first layer comprising:

at least one main separation channel formed in a channel forming medium, said main separation channel containing microfluids when in operation;

electrodes in ~~resevoirs~~ reservoirs at the ends of said main separation channel to drive electrophoretic separation;

at least one detecting channel containing a first conductive element ~~comprising a wire, fiber or a carbon paste~~ for performing electrochemical detection, said detecting channel being formed in said channel forming medium within said first layer and adjoining said main separation channel, wherein said main separation channel and said detecting channel intersect; and

at least one reservoir containing a second conductive element ~~comprising a wire, fiber or paste~~ for serving as a reference to said first conductive element, said reservoir being formed in said channel forming medium ~~and collecting waste when in operation~~, said second layer being absent a conductive element, separation channel and detection channel.

2. (Canceled).

3. (Withdrawn) The microchip of claim 1, wherein said detecting channel intersects said main separation channel at a point defined as an angle of approximately a 90°.

4. (Withdrawn) The microchip of claim 1, wherein said detecting channel intersects said main separation channel at a point defined as an angle of less than a 90°.

5. (Withdrawn) The microchip of claim 1, wherein said detecting channel intersects said main separation channel at a point defined as an angle of greater than a 90°.

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6. (Withdrawn) The microchip of claim 1, wherein said detecting channel intersects said main separation channel at any an end point of said main channel.

7. (Withdrawn) The microchip of claim 1, wherein said channel forming medium comprises a polymeric material comprising poly(dimethylsiloxane).

8. (Withdrawn) The microchip of claim 1, wherein said channel forming medium comprises a polymeric material comprising poly(methylmethacrylate).

9. (Withdrawn) The microchip of claim 1, wherein at least one of aid conductive element and second conductive element comprises a gold wire.

10. (Withdrawn) The microchip of claim 1, wherein at least one of aid conductive element and second conductive element comprises a platinum wire.

11. (Withdrawn) The microchip of claim 1, wherein at least one of said first conductive element and said second conductive element comprises a palladium wire.

12. (Withdrawn) The microchip of claim 1, wherein at least one of said first conductive element and said second conductive element comprises a copper wire.

13. (Withdrawn) The microchip of claim 1, wherein at least one of said first conductive element and said second conductive element comprises a nickle wire.

14. (Withdrawn) The microchip of claim 1, wherein at least one of said first conductive element and said second conductive element comprises a nickle-alloy wire.

15. (Withdrawn) The microchip of claim 1, wherein at least one of said first conductive element and said second conductive element comprises a carbon fiber.

16. (Withdrawn) The microchip of claim 1, wherein said first conductive element and said second conductive element comprises a carbon paste.

17. (Withdrawn) The microchip of claim 1, wherein at least one detecting channel comprises a plurality of detecting channels.

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18. (Withdrawn – Currently amended) A method of forming a microchip comprising: a first layer and a second layer, said first layer being prepared by

forming a main separation channel in a channel forming medium, said main separation channel having a reservoir at each end, each of said reservoirs containing an electrode to drive electrophoresis;

forming a detecting channel in a channel forming medium, wherein said detecting channel adjoins ~~said~~ a main channel within said first layer;

placing a first conductive element ~~comprising a wire, fiber or carbon paste~~ in said detecting channel; and

placing a second conductive element ~~comprising a wire, fiber or carbon paste~~ in said reservoir or said detecting channel to thereby form said microchip,

wherein said second layer is absent a conductive element, separation channel and detection channel.

19. (Withdrawn – Currently Amended) The method of claim 18, further comprising sealing said first layer and said second layer ~~joining said channel forming medium~~ with at least one sealing medium.

20. (Withdrawn) The method of claim 18, wherein said main separation channel, said detecting channel, and said reservoir are formed in said channel forming medium by molding.

21. (Withdrawn – Currently amended) The method of claim 18, wherein said detecting channel intersects said main channel within the first layer.

22. (Withdrawn) The method of claim 18, wherein said detecting channel intersects said main separation channel at approximately a 90° angle.

23. (Withdrawn) The method of claim 18, wherein said detecting channel intersects said main separation channel at less than a 90° angle.

24. (Withdrawn) The method of claim 18, wherein said detecting channel intersects said main separation channel at greater than a 90° angle.

25. (Withdrawn) The method of claim 18, wherein said detecting channel intersects said main separation channel at an end point of said channel.

26. (Withdrawn) The method of claim 18, wherein said channel forming medium comprises a polymeric material.

27. (Withdrawn) The method of claim 26 wherein said polymeric material comprises poly (methylmethacrylate) or poly (dimethylsiloxane).

28. (Withdrawn) The method of claim 18, wherein at least one first conductive element and second conductive element comprises a gold, platinum, palladium, copper, nickle, or nickle alloy wire, carbon fiber or carbon paste.

29. (Withdrawn) The method of claim 18, wherein at least one of said first conductive element and said second conductive element comprises a platinum wire.

30. (Withdrawn) The method of claim 18, wherein at least one of said first conductive element and said second conductive element comprises a palladium wire.

31. (Withdrawn) The method of claim 18, wherein at least one of said first conductive element and said second conductive element comprises a copper wire.

32. (Withdrawn) The method of claim 18, wherein at least one of said first conductive element and said second conductive element comprises a nickle wire.

33. (Withdrawn) The method of claim 18, wherein at least one of said first conductive element and said second conductive element comprises a nickle-alloy wire

34. (Withdrawn) The method of claim 18, wherein at least one of said first conductive element and said second conductive element comprises a carbon fiber.

35. (Withdrawn) The method of claim 18, wherein at least one of said first conductive element and said second conductive element comprises carbon paste.

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36. (Withdrawn) The method of claim 18, wherein said at least one detecting channel comprises a plurality of detecting channels.

37. (Currently Amended) A method of performing electrophoresis comprising:

attaching a first conductive element and a second conductive element to a microchip having at least one test microfluid thereon, wherein said microchip comprises:

a first layer and a second layer, said first layer comprising at least one main separation channel formed in a channel forming medium, said main channel containing at least one microfluid; and

at least one detecting channel containing said [[a]] first conductive element ~~wire, fiber or paste~~ for performing electrochemical detection, said detecting channel being formed within said first layer of [[in]] said channel forming medium and adjoining said main separation channel; and at least one reservoir containing said second conductive element to provide a reference to said first conductive element, ~~said reservoir being formed in said channel forming medium and containing waste; and~~, said second layer being absent a conductive element, separation channel and detection channel; and

applying electrochemical, continuous or pulsed amperometric detection to said microchip using said conductive elements,

wherein specimens within said microfluid migrate toward said first conductive element [[wire]] and electrodes in a reservoir ~~resevoir~~ at each end of said main channel drive electrophoretic transport in the microfluid, and wherein electrical contact with said first conductive element ~~wire, fiber or paste generate~~ generates a measurable signal.

38. (Previously presented) The method of claim 37, wherein said detecting channel intersects said main channel.

39. – 42. (Canceled)

43. (Previously Presented) The method of claim 37, wherein said channel forming medium comprises a polymeric material.

44. (Currently amended) The method of claim [[45]] 37, wherein said channel forming medium comprises poly (methylmethacrylate) or poly (dimethylsiloxane).

45. (Previously Presented) The method of claim 37, wherein at least one first conductive element and second conductive element comprise gold, platinum, palladium, copper, nickle, nickle alloy, carbon fiber or carbon paste.

46. – 52. (Cancelled)

53. (Previously Presented) The method of claim 37, wherein said at least one detecting channel comprises a plurality of detecting channels.

54. (Previously Presented) The method of claim 37, wherein said specimens comprises a carbohydrate, an amino acid, a protein, an antibiotic, levoglucosan. creatinine, creatine, uric acid, an amine, a thiol, an alcohol, or a mixture thereof.

55. – 64. (Cancelled)

65. (Previously Presented) The method of claim 37, wherein said continuous or pulsed amperometric detection provides an electrical potential across said microchip to provide separation and detection of at least one specimen in said microfluid.

66. (Previously Presented) The method of claim 65, wherein said electrical potential applied for separating the specimens contained in said microfluid comprises approximately +100V to approximately +5000V.

67. – 69. (Cancelled)

70. (Previously Presented) The method of claim 65, wherein said electrical potential applied for separating the specimens contained in said microfluid comprises approximately +0.4V to approximately +1.0V.

71. – 72. (Cancelled)

73. (Previously Presented) The method of claim 37, further comprising injecting said microfluid into a channel of said microchip at an electrical potential of approximately +100V, or approximately +500V.

74. (Original) The method of claim 73, wherein the injecting step is performed for between approximately 1 second and approximately 1 minute.

75. (Cancelled)

76. (Previously Presented) The method of claim 37, further comprising injecting said microfluid into a channel of said microchip at an electrical potential of approximately +160V.

77. (Previously Presented) The method of claim 37, further comprising injecting said microfluid into a channel of said microchip at an electrical potential of approximately +410V.

78. (Previously Presented) The method of claim 37, further providing, in combination with said at least one microfluid, an electrolyte solution.

79. (Original) The method of claim 78, wherein said electrolyte solution comprises borate.

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80. (Previously Presented) The method of claim 78, wherein said electrolyte solution comprises a pH of approximately 7.1 to approximately 13 or a pH of approximately 9.45, or a pH of approximately 11, or a pH of approximately 12.

81. – 84. (Canceled)

85. (Original) The method of claim 54 wherein the specimen comprises glycated hemoglobin.

86. (Original) The method of claim 54 wherein the specimen comprises hemocysteine.

87. (Original) The method of claim 54 wherein the specimen comprises uric acid.